

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Patent Application No. 10/714,631

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1 - 154. (Canceled)

155. (New) A self-compensating dynamic balancer apparatus for a disk player having rotational components for rotating a disk about a rotation axis to record and reproduce information from the disk, said apparatus comprising:

a self-compensating dynamic balancer locatable co-axial with said rotation axis to rotate in use with at least one of said rotational components, said self-compensating dynamic balancer comprising a mobile unit arranged to be freely movable within a non-magnetic hollow tube by centrifugal force generated by rotation of said disk such that the center of gravity of said self-compensating dynamic balancer moves to be located opposite to the center of gravity of said disk with respect to said rotation axis; and

wherein:

said mobile unit includes at least one rigid body.

156. (New) An apparatus as claimed in claim 155, wherein said mobile unit further comprises a fluid capable of moving within said tube.

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157. (New) An apparatus as claimed in claim 156, wherein said fluid is arranged to coat said at least one rigid body to reduce friction between said at least one rigid body and said hollow tube.

158. (New) An apparatus as claimed in claim 155, wherein said tube is formed of a body having a race in which said mobile unit is disposed and a cover member which covers said race by coupling to said body.

159. (New) An apparatus as claimed in claim 155, comprising at least two circular tubes which are arranged to be concentric and adjacent to each other and have mobile units located in the respective tubes.

160. (New) An apparatus as claimed in claim 159, wherein, when there is more than one tube, the weights of said rigid bodies located in the respective tubes differ from each other.

161. (New) An apparatus as claimed in claim 155, wherein said rigid body is formed into a shape selected from the group consisting of a spherical body which can roll inside said race, a cylindrical body which can roll with the outer circumferential surface thereof contacting the inner surface of the outer circular wall of said race, a truncated conic body which can roll with the outer circumferential surface thereof contacting the bottom surface of said race, and a

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fan-shaped block which can slide being in contact with the bottom surface or the outer circular wall of said race.

162. (New) An apparatus as claimed in claim 155, wherein said rigid body is formed of a non-magnetic material in order to avoid being influenced by a magnetic force.

163. (New) An apparatus as claimed in claim 162, wherein said rigid body is formed of a substance selected from the group consisting of tungsten carbide (WC), beryllium steel (CuBe), Hastelloy C-276, silicon nitride (Si_3N_4), zirconia (ZrO_2), brass, aluminum, austenite-series steel YHD50, a non-magnetic metal such as SUS300, SUS304 and SUS316, ceramic and a synthetic resin.

164. (New) An apparatus as claimed in claim 155, wherein said rigid body is formed of a non-oxidizing substance which does not corrode.

165. (New) An apparatus as claimed in claim 164, wherein said rigid body is formed of a substance selected from the group consisting of SUS300, ceramic and a synthetic resin.

166. (New) An apparatus as claimed in claim 155, wherein the outer circumferential surface of said rigid body is anti-oxidation coated.

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167. (New) An apparatus as claimed in claim 166, wherein said anti-oxidation coating is formed of one selected from the group consisting of zinc and nickel-chromium plated over a base material of carbon steel or chromium steel.

168. (New) An apparatus as claimed in claim 156, wherein said fluid comprises part of said mobile unit capable of moving in said tube such that the center of gravity thereof is located opposite to that of said disk with respect to said rotation axis by a centrifugal force generated during rotation of said tube.

169. (New) An apparatus as claimed in claim 155, wherein the cross section of said tube enclosing said mobile unit has a shape selected from the group consisting of a rectangular shape, an oval shape having a longer axis in the latitudinal direction with respect to the rotation shaft, and an inwardly bulging polygonal shape in which a portion of each side contacting said mobile unit bulges inward.

170. (New) An apparatus as claimed in claim 155, wherein said tube enclosing said mobile unit is formed of a substance selected from the group consisting of tungsten carbide (WC), beryllium steel (CuBe), Hastelloy C-276, silicon nitride (Si_3N_4), zirconia (ZrO_2), brass, aluminum, austenite-series steel YHD50, a non-magnetic metal such as SUS300, SUS304 and SUS316, ceramic and synthetic resin.

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171. (New) An apparatus as claimed in claim 155, wherein said tube enclosing said mobile unit is formed of a non-oxidizing substance which does not corrode.

172. (New) An apparatus as claimed in claim 171, wherein said tube enclosing said mobile unit is formed of a substance selected from the group consisting of SUS300, ceramic and a synthetic resin.

173. (New) An apparatus as claimed in claim 155, wherein the surface of said tube facing said mobile unit is anti-oxidation coated.

174. (New) An apparatus as claimed in claim 173, wherein said anti-oxidation coating is formed of one selected from the group consisting of zinc and nickel-chromium plated over a base material of carbon steel or chromium steel.

175. (New) An apparatus as claimed in claim 155, comprising a support plate and at least one pivoting plate pivotably coupled to said support plate.

176. (New) An apparatus as claimed in claim 155, wherein said self-compensating dynamic balancer is formed integrally with a turntable.